DRAFT

KLONDIKE GOLD RUSH NATIONAL HISTORICAL PARK TRANSPORTATION STUDY

A NATIONAL PARK TRANSPORTATION SCHOLAR PROJECT
IN PARTNERSHIP WITH:
NATIONAL PARK SERVICE
NATIONAL PARK FOUNDATION
ENO TRANSPORTATION FOUNDATION
AND THROUGH THE GENEROUS SUPPORT OF THE FORD MOTOR COMPANY

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TABLE OF CONTENTS

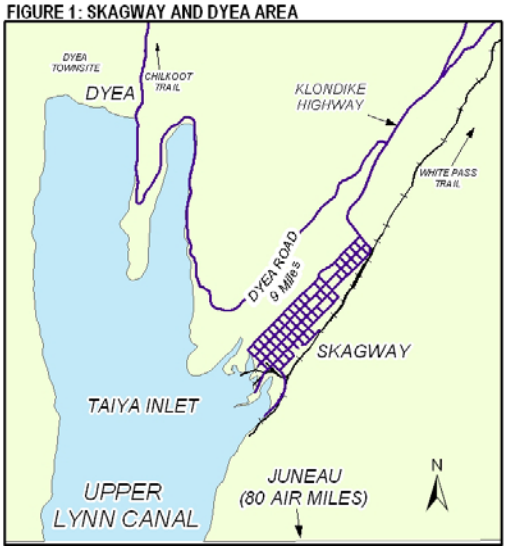
LIST OF FIGURES

LIST OF TABLES

1. PROJECT DESCRIPTION

In 1897 and 1898, Skagway, Alaska witnessed an extraordinary gold rush stampede. For this illustrious period in the town's history, Skagway is now home to one unit of the Klondike Gold Rush National Historical Park (KLGO). Two of the other units of this park are near Skagway: the Chilkoot Trail/Dyea Townsite and the White Pass Trail (See Figure 1). The final unit is located in Pioneer Square in Seattle, Washington. Each unit testifies to various aspects of the amazing gold rush.

FIGURE 1: SKAGWAY AND DYEA AREA



The stampede brought thousands of people to this small port town giving it a short-lived population of over 10,000 in 1898. While Skagway now has a year around population of 862 (2000 United States Census), the population approximately triples between May and September with the addition of seasonal employees. Skagway draws this high number of seasonal residents to fill jobs that service summer tourism. The tourists arrive predominantly by cruise ships.

Skagway has a long history as a cruise ship port, dating back to its famous gold rush period. The Skagway Convention and Visitors Bureau has been keeping statistics on travelers since the early 1980s. In 1983, total cruise ship passenger visitation was 48,066. In 2004, cruise ship visitors are expected to number over 700,000. In 2003, pedestrians from cruise ships represented over 80% of total visitors from May through September.

Without question, the tremendous number of pedestrians from the cruise ships generates the transportation issues in Skagway. These issues include:

- overcrowded sidewalks
- pedestrians using the streets due to congested sidewalks
- inattentive pedestrians' crossing streets unsafely
- vehicular movement onto Broadway delayed due to pedestrian flow

Because the majority of tourists arrive via cruise ship, the primary focus of this report is the transportation patterns between the cruise ship docks and the Broadway historic corridor (See Figure 2). The purpose of the study is to help both KLGO and the City of Skagway accommodate visitors without creating an inconvenient setting for local businesses or residents. A successful transportation plan will be one component in supporting repeat visitation by tourists and a more comfortable and functional environment for locals.

An additional objective of this study is to analyze the potential to increase visitor access to the Chilkoot Trail/Dyea Townsite unit of KLGO. Cruise ship visitors, in particular, who want to visit this unit currently have few choices; access is limited to private vehicles, permitted tour operators, and a shuttle service that does not follow a regular schedule.

The research and data collection for this study was undertaken between April and September 2004.

FIGURE 2: STUDY AREA WITHIN THE CITY OF SKAGWAY MAP

2. CURRENT TRANSPORTATION SYSTEM

2.1. EXISTING PLANS

Table 1 summarizes plans and studies that have focused on Skagway transportation or development. Several of these studies address more than transportation issues, therefore only those proposals that have some transportation element are included in the table. For example, the *Conceptual Master Plan for Landscaping in the Historic District* describes additional landscape proposals for KLGO empty lots that are not listed in Table 1.

TABLE 1: SKAGWAY TRANSPORTATION OR DEVELOPMENT PLANNING

Year	*Title and Preparer*	*Proposals Implemented*	*Proposals Not Implemented*
2004	*Congress Way Reach Restoration Plan (currently in development)* Taiya Inlet Watershed Council		◆Restore Pullen Creek stream channel ◆Construct boardwalk/path, viewing platforms, and access points along Pullen Creek between Congress Way and City Hall
2004	*Seawalk and Upland Conceptual Plans (currently in development)* City of Skagway		◆Visitor Center at Small Boat Harbor/Railroad Dock ◆Wide Sidewalk between harbor parking lot and Railroad Dock ◆Landscaping and seating
2004	*Juneau Access Supplemental DEIS (currently in development)* Alaska DOT&PF		◆Build road between Juneau and Skagway
2001	*Trip Report* NPS Alternative Transportation Center		◆Gateway Pedestrian Improvements ◆KLGO partner with City on prioritizing projects into PMIS ◆Expand SMART (rolling stock, shelters, advertising, facilities, infrastructure) ◆Comprehensive Park Transportation Plan
1999	*Skagway Comprehensive Plan* City of Skagway	◆Dyea Road Improvements (2004)	◆Develop and maintain list of road improvements with priority, cost, and funding into City's CIP ◆Design Traffic Management Plan for 6-week pilot (make Broadway 1-way, close to vehicles, or add a 4-way stop sign) ◆Historic District parking Lot
1998	*Skagway's Recommended Projects for the Alaska DOT&PF Capital Improvement Program* City of Skagway Resolution 98-13R	◆Skagway River Bridge Widening ◆Dyea Road Improvements (2004) ◆Roadway/Harbor Retaining Wall (2004) ◆Local Street Paving	◆Gateway Pedestrian Improvements
1998	*Skagway Vehicular and Pedestrian Study* Alaska DOT & PF	◆Congress Way Sidewalk Widening* ◆Lost Road Pedestrian Connection	◆Gateway Pedestrian Improvements ◆Broadway removable pedestrian facilities (install bollards) ◆5th to 7th Boardwalk to replace gravel path
1996	*General Management Plan* NPS KLGO	*NPS Broadway Empty Lots:* ◆Interpretation ◆Rest Areas & Open Space	
1994	*Conceptual Master Plan for Landscaping in the Historic District* NPS KLGO City of Skagway	*Waterfront:* ◆Improve Wayfinding/Orientation* ◆Maintain opportunities for industrial development ◆Provide shelter and welcome *Kirmse Tent Site (Broadway empty lot between Sweet Tooth and Dedman's):* ◆Provide wayfinding information ◆Interpret commercial district history*	*Waterfront:* ◆Introduce the character of historic Skagway by resurfacing visitor paths as boardwalks ◆Reestablish sense of nature ◆Reduce physical conflicts between uses *Kirmse Tent Site:* ◆Provide sense of enclosure at rear ◆Enhance picnic area *Kalem Tract Site (Empty lot at northwest corner of 4th and Broadway):* ◆Provide sheltered seating in a garden setting ◆Make a wayfinding connection to Moore property

Year	Title and Preparer	Proposals Implemented	Proposals Not Implemented
			◆Interpret the significance of the intersection as the historic "center" of Skagway
1976	*Klondike Gold Rush National Historical Park, Master Plan* NPS	◆1st Avenue extended to Broadway ◆Klondike Highway moved from 2nd to 1st	◆Prohibit parking on Broadway during peak hours ◆Build at least 4 off-street parking lots ◆Extend Spring Street to 1st Avenue ◆Reconstruct portion of rail line on Broadway ◆Maintain dirt streets
*Original recommendation included greater development than was implemented. For example, the *Conceptual Master Plan for Landscaping in Historic District* recommended 12 wayfinding signs; only 2 were installed between the docks and the Skagway Historic District.			

GATEWAY PEDESTRIAN IMPROVEMENT PROJECT

The City of Skagway and KLGO have been successful in building or advancing to the design stage many of the transportation needs identified in Table 1. The notable exception to this is the *Gateway Pedestrian Improvements* project, which is cited in three of the listed reports. That project consists of a wide sidewalk (8-10 feet) on the east side of Broadway between 1st Avenue and the Alaska Marine Highway Ferry Terminal. Other pedestrian orientation amenities (i.e. kiosks, information signs, flags) would also be installed along the proposed sidewalk. This section of Broadway is the southern terminus of the Klondike Highway and is an Alaska Department of Transportation and Public Facilities (AK DOT&PF) road. Therefore, the sidewalk and other improvements would be in AK DOT&PF right of way.

The *Gateway Pedestrian Improvements* project was very nearly built. The City of Skagway and the KLGO worked together to get the project on the AK DOT&PF Statewide Transportation Improvement Program (STIP). KLGO secured $31,000 in funding to elevate the project in the state's prioritization list. The project was selected to receive Federal Fiscal Year 2003 Transportation Enhancement funding. However in the fall of 2003, the project was dropped from the STIP when the state administration reprioritized the state's transportation programming. Since the project is in state right of way, the City of Skagway and KLGO must have state involvement for the project to proceed.

SIMILAR SCALE TRANSPORTATION STUDIES

A review of other transportation plans studying similar circumstances to the City of Skagway highlighted Juneau's 2003 *Downtown Tourism Transportation Study*. It is particularly relevant since it was completed so recently and deals with congestion due to pedestrians from cruise ships. Proposals from that study include:

- Removal and/or relocation of street furniture
- Increased sidewalk capacity and width where possible (minimum width of 12' is recommended based on existing peak pedestrian flows)
- Strategic placement of pedestrian crosswalks
- Increased visibility of pedestrian crosswalks
- Sidewalk channelization to crosswalk locations
- Improved way finding
- Management of existing facilities for parking and loading of vehicles
- Visitor education

Juneau is concentrating on increasing sidewalk capacity, making street crossings safer, and improving pedestrian orientation. There is a similar need in Skagway.

2.2. MODAL INVENTORY

A modal inventory identifies, counts, and analyzes the various means of transportation used in a system (i.e. private vehicles, bicycles). A yearly count of incoming visitors to Skagway is compiled by the Skagway Convention and Visitors Bureau. Their 2003 data is a good account of the predominant modes seen during summer tourist season (see Table 2).

TABLE 2: MODAL INVENTORY

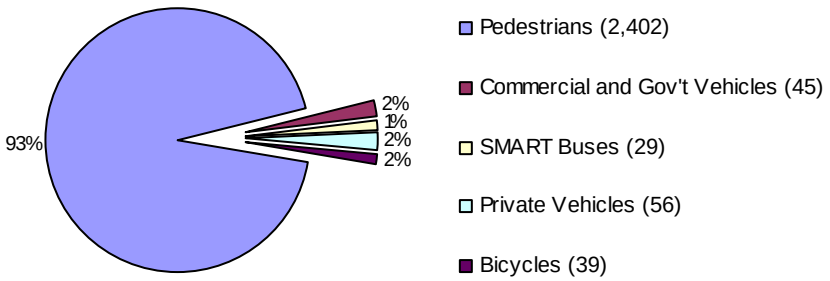
Mode	Description	2003 Total Entering Skagway May through September	Percent of Total
Cruise Ship Pedestrians	The average total daily capacity of ships at dock Mondays-Thursday (May 31-September 16th) is 7,946 passengers.	639,742	81.87%
Vehicles	U.S. Customs count of the number of vehicles entering on Klondike Highway.	74,750	9.57%
Air	Skagway Air, Wings of Alaska, and L.A.B. Flying serve Skagway.	6,340	0.81%
AMHS Ferries	Ferries arrive 9-10 times a week.	23,814	3.05%
WP&Y Railroad	2003 total only represents arrivals from the Whitehorse, Yukon Territory service.	13,065	1.67%
Other	Includes private aircraft, small boat harbor, Chilkat Cruises Fast Ferry.	23,724	3.04%
	TOTAL	**781,435**	**100%**

(Bicycles, SMART municipal buses, and private commercial buses and shuttles are also part of the modal inventory of Skagway, but are not tracked yearly as they generally carry existing visitors or residents within the Skagway area.)

Bicycles	Bicycling is a popular mode among seasonal and permanent residents. Three businesses rent bicycles to visitors. Pedicabs also provide rides between the docks and the Skagway Historic District.
Commercial Buses	Commercial buses operated by cruise ship companies, Greyline of Alaska, and other companies provide tours to scenic destinations and service to interior cities in Canada and Alaska. Those entering from Canada are counted with vehicles in the table above.
Tour Companies	Approximately 25 companies operate a variety of both natural and cultural history and adventure tours in Skagway and Dyea. See Appendix B for the 2004 listing.

As shown, cruise ship pedestrians dominate the modal groups within the study area during the tourist season; this is especially evident within the Skagway Historic District. To provide a more micro look at the modal inventory, one-hour modal counts on Broadway were performed 17 times over the 4 month period between May and September 2004. An average of the peak period counts per mode is depicted in Figure 3.

FIGURE 3: AVERAGE OF MODAL COUNTS DURING PEAK PERIODS



VEHICULAR TRAFFIC

Vehicular traffic volumes in Skagway are low and vehicles experience little, if any congestion. AK DOT&PF counts average daily traffic (ADT) every summer. Counts include both directions of traffic.

TABLE 3: VEHICULAR TRAFFIC VOLUMES

Count Location	2000	2001	2002	2003
State Street at 9th Avenue	2,637	2,208	1,908	1,993
Broadway at 8th Avenue	1,442	1,225	1,572	1,605
Klondike Hwy north of Dyea Road	879	524	599	601

Vehicular traffic delay at intersections was not measured as field observations indicated typical waiting times of less than 10 seconds.

Skagway's transit system, the Alaska Marine Highway System, and the railroad have unique roles in the town's transportation network, and therefore are described in greater detail below.

MUNICIPAL TRANSIT

The City of Skagway has overseen the Skagway Municipal and Regional Transit (SMART) since its establishment in 2000. A contractor manages the fleet and operations of the transit system. Prior to 2000, multiple private companies provided city transit. However, as an unregulated service, there were no scheduled routes or regularity to the headways. As a result the City restricted the service to a single contractor.

SMART runs seven days a week during the cruise ship season. Operations begin at 7:30 a.m. and end at 9:00 p.m. While SMART does not follow a specific schedule, passengers who board the bus at the docks or on Broadway generally do not wait longer than five minutes for service to begin. The 2004 fare is $1.50.

SMART currently has an eight bus fleet. On peak days, SMART runs seven buses: Five servicing the Railroad and Ore Docks and two servicing the Broadway dock. Bus capacity is 25 persons. SMART carries approximately 5,000 passengers on high volume days.

The routes generally run from the docks to 8th Avenue. Within the Skagway Historic District, there are four northbound and three southbound signed stops (see Figure 4). Additionally there are two signed stops on southbound State Street and one on northbound Broadway at 12th Avenue. Since State Street is the Klondike Highway and an Alaska DOT&PF road, SMART buses may only pick up or drop passengers off at the signed stops. Call boxes at the State Street stops alert the system of waiting passengers. On request, a driver will take passengers to Jewell Gardens or the Klondike Gold Dredge (both north of 23rd Avenue. Additionally there is a signed stop on the north side of 23rd Avenue at Alaska from which point passengers may walk through the WP&Y Rail yards to the Gold Rush Cemetery.

SMART is currently identifying potential sites to build a garage to house and maintain the buses. The waterfront's uplands staging area, municipal vacant lots immediately east of the police station, and municipal land north of the White Pass and Yukon Railroad shops at the northern end of town are all potential locations.

ALASKA MARINE HIGHWAY SYSTEM

Since 1963, the Alaska Marine Highway System (AMHS) has operated with year round service. In 2002, 32,598 passengers disembarked from the AMHS into Skagway. Of those passengers, 82% arrived in Skagway between May and September.

The AMHS ferries do not always arrive during Skagway's peak hours (Monday thru Thursday, 9 a.m. to 5 p.m.). For example, the ferry system made 45 trips to Skagway in July 2004. Of those trips, only 17 arrived during the peak period. Nine of the 17 arrivals were from the new fast ferry service via the M\V Fairweather from Juneau on Tuesdays and Thursdays at 3:00. (It also arrived on non-peak Friday and Saturday at 3:00.) The other 8 peak hour ferry arrivals occurred on Mondays and Wednesdays between 11:45 a.m. and 4:15 p.m.

The non-peak AMHS arrivals, while not always convenient for locals, do not add to Skagway's traffic issues. Even arrivals during peak periods add a minor number of pedestrians to the study area. Besides being small in number, the AMHS visitors are able to pursue different activities that are unavailable to the day visitors of the cruise ships. Some come to hike the Chilkoot Trail and spend little time in Skagway. Others disembark with their vehicles and are simply passing through Skagway, en route to Canada.

However, passengers who disembark with vehicles during peak periods do add a relatively significant number of vehicles to Broadway within the hour following the ferry's arrival. Vehicles disembarking from the ferry were observed to determine the

percentage of private vehicular traffic that proceeds north on Broadway or turns to follow the Klondike Highway on 1st Avenue. Of the 6 observances, 76% of the vehicles continue north on Broadway into the Historic District.

The only directional sign for drivers new to Skagway is about 150 feet south of 1st Avenue as they proceed north from the terminal. This sign states "Whitehorse" with an arrow directing drivers to turn west onto 1st Avenue. The alignment is not marked as the Klondike Highway.

WHITE PASS AND YUKON RAILROAD

The White Pass and Yukon (WP&Y) Railroad has both a significant historic and current role in Skagway's transportation system. Since that company owns the Railroad Dock and holds the lease on the tidelands, they schedule the dock space for all of the cruise lines. WP&Y rail service now primarily caters to tourists from the cruise ships. During the 2004 tourist season, WP&Y's schedule was as follows:

TABLE 4: TRAIN DEPARTURES AND ARRIVALS

Destination→	**Whitehorse, Yukon** (passengers transfer to bus at Fraser, B.C. for final segment to Whitehorse)	**Lake Bennett Excursion**	**White Pass Summit Excursion** (up to 4 trains for 8:15 & 12:45; up to 2 trains for 4:30 depending on number of ships)
Loading Location→	**Depot**	**Depot**	**Docks**
Monday	8:00 am, 12:30 pm		8:15 am, 12:45 pm, 4:30 pm
Tuesday	8:00 am, 12:30 pm		8:15 am, 12:45 pm, 4:30 pm
Wednesday	8:00 am, 12:30 pm		8:15 am, 12:45 pm, 4:30 pm
Thursday	8:00 am, 12:30 pm		8:15 am, 12:45 pm, 4:30 pm
Friday	8:00 am, 12:30 pm	8:00 am	8:15 am, 12:45 pm
Saturday	8:00 am, 12:30 pm	8:00 am	8:15 am, 12:45 pm
Sunday	8:00 am, 12:30 pm		8:15 am, 12:45 pm
Arriving from→	**Whitehorse, Yukon**	**Lake Bennett Excursion**	**White Pass Summit Excursion**
Unloading Location→	**Depot**	**Depot**	**Docks**
Monday	12:30 pm, 4:30 pm		11:15-11:45 am, 3:45-4:15 pm, 7:30-8:00 pm
Tuesday	12:30 pm, 4:30 pm		11:15-11:45 am, 3:45-4:15 pm, 7:30-8:00 pm
Wednesday	12:30 pm, 4:30 pm		11:15-11:45 am, 3:45-4:15 pm, 7:30-8:00 pm
Thursday	12:30 pm, 4:30 pm		11:15-11:45 am, 3:45-4:15 pm, 7:30-8:00 pm
Friday	12:30 pm, 4:30 pm	4:30 pm	11:15-11:45 am, 3:45-4:15 pm, 7:30-8:00 pm
Saturday	12:30 pm, 4:30 pm	4:30 pm	11:15-11:45 am, 3:45-4:15 pm, 7:30-8:00 pm
Sunday	12:30 pm, 4:30 pm		11:15-11:45 am, 3:45-4:15 pm, 7:30-8:00 pm

An excursion on a WP&Y train is an extremely popular tour in Skagway. The railroad is capable of carrying over 6,200 passengers per day. On a record setting day of June 16, 2004, WP&Y carried 1,845 on their 8:15 am White Pass Summit Excursion trains. Additionally they carried 1,720 passengers on their one-way excursions to Whitehorse. Assuming that approximately half of the Whitehorse trips occurred on the morning run, then 2,705 individuals departed from Skagway between 8:00 and 8:15. While not all of the passengers were from cruise ships, 2,705 represents 30% of the cruise ship capacity on June 16th.

2.3. TRANSPORTATION INFRASTRUCTURE

SIDEWALKS

Skagway's sidewalk infrastructure is of critical importance because of the high volume of seasonal pedestrians. Unfortunately the vast majority of the sidewalk widths within the study area are insufficient for current use during peak days. The AK DOT&PF produced the *Skagway Vehicular and Pedestrian Study* in 1998. That work included a sidewalk width inventory. As part of this report, the sidewalk width inventory was updated and mapped with KLGO's geographic information

system (GIS). As was noted in AK DOT&PF's 1998 study, one significant missing link in the sidewalk system is a lack of a sidewalk on the east side of Broadway between the ferry terminal and 1st Avenue. Another missing link adjacent to the Historic District is the lack of a sidewalk on either side of Spring Street between 3rd and 5th and Avenues (see Figure 4).

Both the material and width of Skagway's sidewalk system are varied. Boardwalks within the Historic District are reminiscent of the town's infrastructure during its gold rush days. While not original, today's boardwalks evoke the sense of a frontier town. Boardwalk widths are generally between 5 and 8 feet. They are handicapped accessible and are maintained by the City of Skagway. Concrete sidewalks with widths ranging from 4 to 10 feet are mainly found outside of the Skagway Historic District and along the majority of the railroad tracks between the docks and 2nd Avenue. See Appendix C for locations of boardwalks versus concrete sidewalks.

While the boardwalk widths along Broadway in the Historic District range between seven and eight feet, the operative walking area is often much less. Street furnishings in the form of benches, planters, trash cans, and support posts are common and often reduce the effective width to less than four feet. A walkway's effective width can also be reduced by parallel parked cars like those found on Broadway. This is because pedestrians often apply a "shy" distance and avoid walking immediately adjacent to the vehicles since projecting features (i.e. car mirrors) may overhang into the pedestrians' path or doors may open unexpectedly.

Juneau's *Downtown Tourism Transportation Study* recommended minimum 12-foot wide sidewalks based on their peak pedestrian flows. Per that study, Juneau's peak hour pedestrian counts ranged from 2,000-2,600. Skagway's upper range of peak hour pedestrian counts was over 3,000.

PARKING

Drivers of private vehicles can generally park within three blocks of their destination, and often much closer. Generally parking on Broadway within the Historic District is restricted to one hour from 8 a.m. to 6 p.m. and limited to vehicle lengths less than 19 feet. Additionally there are parking sections reserved for SMART buses and other 20 minute parking restrictions or loading zones. Unlimited street parking is available on side streets except in loading or fire truck zones.

Informal surveys of parking during business hours found dense parking from 1st Avenue to 5th Avenue and from Spring to State Streets. The City of Skagway is planning on opening a public parking lot immediately east of the Police Station along 1st Avenue between State and Broadway. This will be a convenient lot for employees who work in the southern half of the Historic District and for visitors. However unrestricted street parking is easily found west of State and north of 5th Avenue.

Since 1978 as their tourism industry began to grow, the City of Skagway has considered prohibiting parking on Broadway. KLGO, in its 1976 *Master Plan*, additionally recommended the prohibition of parking on Broadway in the Historic District and planned to build four parking lots near the Historic District. A parking lot plan was developed by KLGO in 1978 but was not supported when presented to the City of Skagway. At that time the loss of taxable property was a greater concern to the City than the need for parking lots. Without city support, KLGO did not pursue the plan.

WAY FINDING SIGNS

There are currently three large wayfinding signs designed for visitors that were installed in 2000. Two are located between the waterfront and the Historic District as indicated on Figure 4. A third is located at the north entrance of town on the Klondike Highway at Alaska Street (See Figure 2). The signs are attractive and easy to read. They break down destinations and amenities into groups like Services, Emergency, Transportation, Restrooms, Recreation, etc. The signs do not show the paths through the Pullen Creek Shoreline Park as pedestrian routes or the alignment of the Klondike Highway. As noted in Table 1, the 1994 *Conceptual Master Plan for Landscaping in the Historic District* recommended a much higher concentration of wayfinding signs (12) between the docks and the Historic District. See Appendix D for original map of wayfinding sign locations from that study.

FIGURE 4: SKAGWAY INFRASTRUCTURE MAP

FIGURE 5: WAY FINDING SIGN

FIGURE 6: CLOSE UP OF LEGEND

DOCKS/WATERFRONT

The 1994 *Conceptual Master Plan for Landscaping in the Historic District* describes the waterfront area as "the most complex area in the city" for it is where all modes of transportation meet. In 2000, M&M Tour Sales and SMART Transit replaced hawkers of individual tour and bus companies at the docks thereby calming the chaotic atmosphere. The waterfront as a whole, however, is still busy as industry, cruise ships, small boats, state ferries, a public park, restaurants, and R.V.s all function in this small area.

ROADS

Skagway streets are relatively wide and well maintained. Broadway is 44 feet wide within the Historic District. State Street is 44 feet wide throughout Skagway. Both facilities are considered local collectors. Parking is available on both sides of the majority of streets. There are no one-way streets. The speed limit is 25 miles per hour throughout most of the town.

As noted previously, the Klondike Highway is an AK DOT&PF road. Traveling south from Canada, the Klondike Highway enters the Skagway street grid on State Street at 23rd Avenue. It continues south on State Street until 1st Avenue where it turns east towards Broadway. At Broadway, the highway turns south again and terminates at the Alaska Marine Highway Ferry Terminal. The intersection of 1st Avenue and Broadway is a three-way intersection. East bound 1st Avenue vehicles have a yield sign, while southbound Broadway vehicles have a stop sign, and north bound Broadway vehicles have right of way.

2.4. TRANSPORTATION PATTERNS ANALYSIS

PEAK TRANSPORTATION PERIODS

The Texas Transportation Institute defines the peak traffic period as any time when demand for facilities is greater than normal and frequently exceeds capacity. Peak hours may determine when such measures as parking restrictions are enforced. Additionally, the transportation patterns are examined more closely at peak periods when the transportation issues are most problematic. Since pedestrians from the cruise ships generate the traffic issues in Skagway, the cruise ship schedule is the first key to identifying the city's peak traffic periods. During the 2004 tourist season, Monday through Thursday were the peak days. The average daily total ship capacities Monday through Thursday (May 31 – September 16) was 7,946. The average of total daily ship capacities Friday through Sunday (May 28 – September 19) was 2,374 (see Table 5). Based on 2004 modal counts and street observations, the peak hours were broad: 9:00 a.m. to 6:00 p.m. The ships generally arrived by 7:30 am and left in the evening. Many passengers returned to the ship to eat dinner onboard. However since Skagway congestion is driven by tourist pedestrians, it is subject to being inconsistent. Poor weather or ships not at capacity can drastically impact the congestion in the study area.

TABLE 5: 2004 TOTAL DAILY CRUISE SHIP CAPACITIES

Week of:	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
31-May	4,469	8,707	8,733	5,218	2,046	2,400	4,414
7-Jun	7,591	8,581	9,377	5,210	2,136	1,440	3,200
14-Jun	6,255	8,581	8,983	7,888	3,006	1,828	2,950
21-Jun	7,597	8,581	8,989	7,880	2,052	2,040	4,618
28-Jun	7,215	8,707	8,983	7,888	2,130	1,440	2,824
5-Jul	7,513	8,707	8,739	7,880	2,052	3,030	2,824
12-Jul	7,215	8,707	8,733	7,888	1,296	1,440	2,824
19-Jul	7,845	8,707	8,989	7,880	3,012	1,440	2,902
26-Jul	6,255	8,707	8,733	7,888	3,636	1,690	2,824
2-Aug	7,597	8,683	8,887	7,880	2,052	1,440	2,950
9-Aug	7,845	8,707	8,733	7,888	2,130	1,440	2,824
16-Aug	7,215	8,581	8,739	7,880	2,690	1,440	2,950
23-Aug	6,255	8,707	8,733	7,888	2,046	3,038	2,908
30-Aug	6,255	8,683	8,887	7,958	2,052	1,828	3,028
6-Sep	6,255	8,581	8,965	7,888	1,950	1,440	2,824
13-Sep	5,643	8,581	8,175	6,622	1,870	1,440	2,124
AVERAGE	*6,814*	*8,657*	*8,836*	*7,477*	*2,260*	*1,801*	*3,062*

Source: Skagway Convention and Visitor Bureau's 2004 Cruise News Skagway Ship Schedule

Origin/Destination Analysis

A traditional origin/destination analysis generally includes a survey of households to establish trip origination, destination, mode, purpose, and tripmaker characteristics. In place of a survey, information from the Skagway Convention and Visitors Bureau and M&M Tours sales was used to ascertain the number of cruise ship passengers per dock and the major tourist destinations.

The cruise ship schedule was further analyzed by dock. Daily cruise ship capacities for the month of June were calculated by dock. Looking at visitors by dock reveals that most large cruise ships tie up at the Railroad Dock. Its average daily capacity in June is 3,590. Ore Dock follows with a June daily average of 2,125. Broadway Dock's June daily average was 1,399 and the AMHS dock was last with 152. The AMHS average only includes cruise ship visitors and not ferry passengers. This data is graphically represented as pedestrian flow in Figure 7. While no survey has been done, it is assumed that nearly all Skagway visitors travel to the Historic District. Figure 7 also shows that while the most trips originate from the Railroad Dock, the total of pedestrian trips from the Ore, Broadway, and AMHS Docks at 3,677 actually exceeds the Railroad Dock. The Ore, Broadway, and AMHS Dock visitors merge at the intersection of Broadway and the Ore Dock rail line.

FIGURE 7: CRUISE SHIP PEDESTRIAN FLOW FROM DOCKS MAP

LEVEL OF SERVICE

Level of Service (LOS) grades congestion on a facility with an A through F scale. LOS A is free-flow movement and LOS F indicates stop and go movement. LOS A, B, or C is generally considered acceptable. Pedestrian level of service was evaluated per the 2000 *Highway Capacity Manual* (HCM). The HCM measures LOS based on speed (feet/second) and/or capacity via a flow rate (pedestrians/minute/foot width of effective walkway) (see Table 6). More sophisticated methodologies have been developed that take into account adjacent motor vehicular speed and volume; barriers between pedestrians and roadway; driveway frequency, security, etc. However, these other factors are not significant issues in Skagway. Vehicular traffic volume is low and the 25 mile per hour speed limit is maintained in part because of the high percentage of professional drivers (i.e. bus, shuttle, tour operators). The boardwalk system north and south along the Broadway historic corridor could be described as predominately uninterrupted flow as there are no stop lights and stop signs are limited to east/west streets.

TABLE 6: PEDESTRIAN WALKWAYS AND SIDEWALKS LOS

LOS	Speed (feet/second)	Flow Rate (pedestrian/ minute/feet)	Description
A	>4.25	< or = 5	Pedestrians move in desired paths without altering their movements in response to other pedestrians. Walking speeds are freely selected and conflicts between pedestrians are unlikely.
B	4.17-4.25	5-7	There is sufficient area for pedestrians to select walking speeds freely, to bypass other pedestrians, and to avoid crossing conflicts with others. At this level, pedestrians begin to be aware of other pedestrians, and to respond to their presence in the selection of their walking path.
C	4.00-4.17	7-10	Space is sufficient for normal walking speeds, and for bypassing other pedestrians in primarily uni-directional streams. Reverse-direction or crossing movements can cause minor conflicts, and speeds and flow rate are somewhat lower.
D	3.75-4.00	10-15	Freedom to select individual walking speed and to bypass other pedestrians is restricted. Crossing or reverse-flow movements face a high probability of conflict, requiring frequent changes in speed and position. The LOS provides reasonably fluid flow, but friction and interaction between pedestrians is likely.
E	2.50-3.75	15-23	Virtually all pedestrians restrict their normal walking speed, frequently adjusting their gait. At the lower range, forward movement is possible only by shuffling. Space is not sufficient for passing slower pedestrians. Cross- or reverse-flow movements are possible only with extreme difficulties. Design volumes approach the limit of walkway capacity, with stoppages and interruptions in flow.
F	< or = 2.50	variable	All walking speeds are severely restricted and forward progress is made only by shuffling. There is frequent, unavoidable contact with other pedestrians. Cross- and reverse-flow movements are virtually impossible. Flow is sporadic and unstable. Space is more characteristic of queued pedestrians than of moving pedestrian streams.

Source: Transportation Research Board, 2000 Highway Capacity Manual

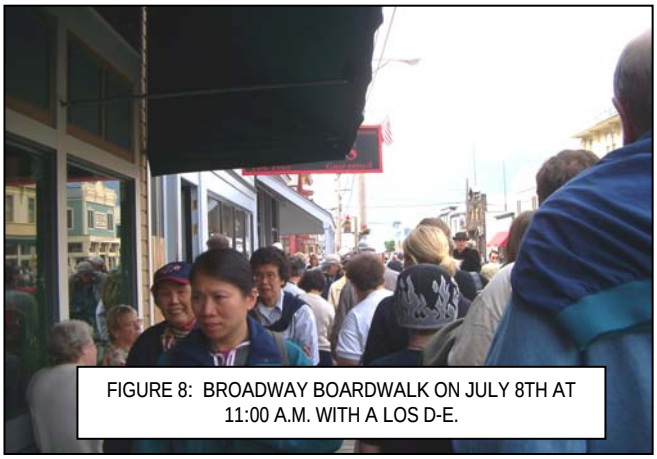


FIGURE 8: BROADWAY BOARDWALK ON JULY 8TH AT 11:00 A.M. WITH A LOS D-E.

Walking Speed Measurements

Twenty-five timed walks were conducted between the centerline of 2nd Avenue and the centerline of 6th Avenue (1,115 feet). While walking was restricted to the boardwalk only, position was adjusted to pass other pedestrians where possible. The average speed during peak hours was 3.67 feet per second which is a LOS E. The written description listed in Table 5 for LOS D described the majority of these walks, although LOS E conditions also were experienced. LOS E conditions would be even more common if all pedestrians used the boardwalks. In fact, many walkers avoid the boardwalk congestion and use the street since vehicular volumes are so low. Appendix F includes the full

data set from the timed walks.

Modal Counts and Flow Rate Measurements

Modal counts were conducted to establish approximate volumes of all modes during peak hours. Counts were made in one hour blocks with 15 minute intervals totals recorded. The counter location was the KLGO empty lot on the west side of Broadway between 3rd and 4th Avenues (adjacent to Pantheon building). Pedestrians traveling both north and south on both sides of Broadway were totaled by counting all who crossed an imaginary line drawn from the counter location across Broadway to the opposite building front. SMART buses were counted directionally as were commercial/government vehicles, private vehicles, and bicycles. Some counts also further distinguished horse carriages and yellow Skagway Streetcar vehicles. High counts tallied over 3,000 pedestrians passing in one hour. Some fifteen minute volumes exceeded 800 pedestrians. Note that any pedestrian who crossed the imaginary line multiple times was counted for each trip. Thus the data does not reveal the actual number of pedestrians present but rather reflects the overall activity at the counting location. This method is consistent with data collection techniques used for vehicular and bicycle counts.

A calculation of average flow rate returns a LOS of A. The difference between the LOS based on speed and that based on flow rate is the walking behavior of tourist pedestrians. Unlike local pedestrians, tourist pedestrians walk slowly, window shop, change directions, and frequently stop to talk or take pictures. They are often not intent on a specific destination. The result is the boardwalks get congested with a smaller number people than would happen with non-tourist pedestrians. The flow rate assumes “uniform rates of flow, and the continuous somewhat competitive movement of pedestrians towards an objective” per the Federal Highway Administration’s *Planning, Design, and Maintenance of Pedestrian Facilities*. While LOS based on speed is sensitive to the tourist strolling behavior, flow rate is not. Appendix G includes the data set from the modal counts.

Extent of Congestion

During peak periods, the boardwalks and sidewalks are congested along the Broadway historic corridor from the intersection of the Ore Dock rail line and Broadway north to 7th Avenue. While some pedestrians explore the east-west avenue shops in the Historic District, the majority stick to Broadway. Congestion also is frequent on the 5-foot sidewalk between the small boat harbor and the Railroad Dock. See Figure 9 for the location of sidewalks lacking adequate capacity during peak periods.

FIGURE 9: SIDEWALKS WITH DEFICIENT WIDTHS AND PRIMARY CONFLICT ZONE MAP

INTERMODAL ANALYSIS

This intermodal analysis focuses on how well connections between transportation modes function. For cruise ship passengers, many linkages between modes are available at or adjacent to their cruise ship docks. For example, WP&Y Railroad has tracks running to each dock where cruise ship passengers may board. Additionally the majority of tour companies pick up their groups in designated areas neighboring the docks (see Figure 4). SMART also has bus stops at each dock. These intermodal connections occur without many problems. Once aboard the train, tour shuttle, or bus, the visitors are generally assisted with their orientation through commentary by their respective operators or guides. While the docks can seem chaotic due to the sheer number of people and vehicles, these intermodal interactions appear to work well.

Pedestrians from cruise ships also make their way to town without much trouble; however both wayfinding assistance and pedestrian infrastructure could be considerably enhanced. The 1994 *Conceptual Master Plan for Landscaping in the Historic District* provides good recommendations for both of these shortfalls. This plan suggested a total of 12 wayfinding signs between the docks and 2nd & Broadway. Additionally it proposed a historically and scale appropriate walkway system (See Appendix D & E).

Modal conflicts, however, become prevalent when pedestrians enter the street grid system at the southern end of the Skagway Historic District. The greatest concentration of pedestrians converges with other modes in the following intersections:

FIGURE 10: VIEW OF 1ST & BROADWAY ON AUGUST 2ND AT 10:45 A.M.

- 1st Avenue and Broadway
- 2nd Avenue and Broadway

A "gateway" area exists in the vicinity of 1st Avenue & Broadway. It is where pedestrians from the Ore Dock, Broadway Dock, and the AMHS Ferry Terminal converge. Pedestrians traveling on the sidewalk on the west side of Broadway see Centennial Park with the White Pass Snow Fleet historic train, WP&Y Depot, and welcoming benches and landscaping. Just to the north is the NPS Visitor Center on the east side of Broadway. Many pedestrians attracted to these sites cross Broadway in the vicinity of 1st Avenue. Additionally vehicular traffic is heavier in this intersection as it is part of the Klondike Highway and is the first intersection north of the AMHS Ferry Terminal.

FIGURE 11: VIEW OF THE NORTHWEST CORNER OF 2ND & BROADWAY ON AUGUST 25TH AT 11:45 A.M.

At 2nd and Broadway, pedestrians from the Railroad Dock converge with pedestrians from the Broadway, Ore, and AMHS Ferry docks. Additionally, major attractions like the NPS Visitor Center, Red Onion Bar, AB Hall, and SMART bus stops create several high use points. These points are:

1. Northwest corner of 2nd and Broadway at bus stop in front of Red Onion bar
2. Southeast corner of 2nd and Broadway at the KLGO Visitor Center
3. Northeast corner of 2nd and Broadway

Additionally the bus stop at Mascot at the southeast corner of 3rd and Broadway has surges of congestion as people wait for the bus and during loading and unloading of the bus.

Visitor Distribution

The tour companies are an important element in visitor distribution. The most popular tour is the "summit tour" which is offered by nine tour companies through the M&M Tour Sales. The "summit tours" depart hourly between 9:30 and 3:30 from the docks and from operators on Broadway. Additionally, as already described, the WP&Y Railroad is capable of carrying 30% of the cruise ship visitors to the White Pass Summit or beyond into Canada every morning and afternoon. This removal of a large percentage of the daily visitors for up to 3.5 hours each morning and afternoon lessens the congestion throughout the day within the Historic District.

Pedestrian Visitor Experience

Standards for quality of service for pedestrians are described in the 2000 *Highway Capacity Manual*. Both movement and environmental factors are listed:

- Freedom to choose desired speeds and pass slower pedestrians
- Comfort (weather protection, transit shelters, pedestrian amenities)
- Convenience (walking distances, pathway directness, sidewalk ramps, directional signing, directory maps)
- Safety (separation of pedestrians from vehicles by space and/or time)
- Security (lighting, open lines of sight, degree and type of street activity)
- Economy (user costs incurred by delays and inconvenience; commercial values and retail development influenced by pedestrian accessibility)

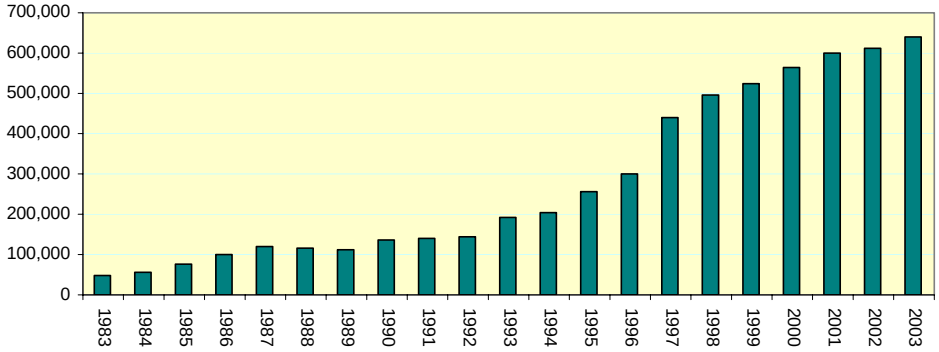
In a National Historical Park, the visitor's experience is extremely important. Besides making the places, buildings, and artifacts of the gold rush available for interpretation, KLGO also strives to illustrate or portray the feeling of the period of significance. Various current transportation elements contribute and/or detract from this gold rush interpretation:

• Pedestrian crowds on Broadway	The sheer number of visitors both adds and diminishes the visitor's experience: ▲ The crowds on Broadway can be interpreted as analogous to the thousands of gold seekers who were in Skagway prior to their departure for the Klondike. ▼ However, the congestion can make the visitor's experience feel hurried or prevent them from viewing some historic features of the town.
• Horse-drawn carriages and vintage Yellow Street Car Buses	▲ Many visitors are drawn to both of these tours because of their historic appeal.
• Parked cars on Broadway	▼ Modern parked vehicles do not add to the visitor's experience of period of significance.
• SMART buses	▼ The modern look of the SMART buses does not add to the visitor's experience of period of significance.

2.5. VISITATION · TOURISM

As a result of the cruise line industry, KLGO is the most visited national park in Alaska. As shown in Figure 10, cruise ship visitation has risen considerably since the early 1990s. Despite the cruise industry's dominance in the tourism market, independent travelers remain an important component of Skagway's overall visitors as they may be present year-round.

FIGURE 12: CRUISE SHIP PASSENGER VOLUMES IN SKAGWAY



3. VISITOR ACCESS TO CHILKOOT TRAIL/DYEA TOWNSITE

Visitor access to the Chilkoot Trail/Dyea Townsite unit of the park is treated separately from the pedestrian congestion that affects Skagway. Therefore, both the description and proposals are listed together in this section.

The Chilkoot Trail/Dyea Townsite unit of KLGO is located approximately 9 miles northwest from Skagway. There is no public transportation service available to the area. Private vehicle, permitted shuttle services, guided tours, cycling, or walking are the only modes available to access Dyea. The permitted transportation shuttle services are Dyea Dave and Frontier Excursions. Several tour companies offer excursions or guided tours there. The excursions include floating the Taiya River, cycling or horseback riding near the historic Dyea Townsite, and dog sledding on wheels. Hikers needing transportation to the Chilkoot trailhead or visitors with no vehicle who wish to explore the Dyea Townsite generally rely on Dyea Dave for transportation. Dyea Dave does not run a scheduled service, but takes reservations and checks in with the KLGO Trail Center where hikers pick up their permits.

KLGO currently has a moratorium on new permits or commercial use authorizations (CUAs) to access the Chilkoot Trail/Dyea Townsite unit so that visitor use and carrying capacity of the unit could be assessed. During the summer of 2004, a Visitor Experience and Resource Protection (VERP) survey was conducted. Data from the VERP will be used in deciding how future CUAs will be allocated.

Regular access to Dyea could be created through the SMART service or by requiring scheduled service with new permits to access Dyea through the Park's incidental permitting. At a minimum, regularly scheduled service should leave Skagway such that it arrives in the Dyea Townsite by 2:00 for the KLGO's ranger led tour. Further, the service should, at a minimum, pick up passengers from the Townsite location soon after the tour ends (i.e. 3:30).

The NPS's Alternative Transportation Program (ATP) completed a *Trip Report* after a site visit in Skagway August 13-15, 2001. Among the recommendations, the *Trip Report* suggested pursuing ATP funding in partnership with the City for multiple SMART system enhancements including:

- Purchase of additional rolling stock to augment the current SMART buses to serve remote NPS sites
- Improvements/expansion of current SMART bus stops/shelters serving visitors and NPS sites
- Assistance in the development of information pamphlets/media for the current SMART bus stops
- Facilities/infrastructure supporting the operation of the SMART bus system

The City is currently renegotiating or possibly re-bidding the SMART contract. KLGO should take this opportunity to push for SMART service to Dyea. Additionally KLGO should partner with the City in the submittal of PMIS applications for federal funding for future SMART improvements.

4. PROPOSALS

The objective of the following proposals is to suggest ways to accommodate the tremendous number of pedestrians without creating an inconvenient setting for local businesses or residents. In general, accommodating all visitors and relieving Broadway congestion can occur through two means:

- ✓ Increase pedestrian capacity
- ✓ Distribute pedestrians onto alternative routes

Additional measures like wayfinding signs, crosswalks, and resting areas will assist visitor orientation, enhance safety, and ease visitor travel yet not make significant headway in managing their volume. Successful improvements will also limit modal conflicts between vehicles and walkers. Table 6 groups the proposals by intended result. Figure 11 displays the proposed improvements in the vicinity of the waterfront to 4th Avenue.

The "friendliness" rating is simply a rough estimate of how pedestrians, businesses, and residents might respond to each proposal. The ratings are *only* intended to facilitate comparisons between proposals.

TABLE 7: PROPOSALS

	CREATE PEDESTRIAN CAPACITY THROUGH USE OF PARKING LANES AS PEDESTRIAN LANES	***Pedestrian Friendly***	***Business Friendly***	***Resident Friendly***
1a.	Replace Broadway parking lanes with pedestrian lanes through installation of removable bollards May-Sept. (2nd- 6th Avenue) *as detailed in Skagway Vehicular and Pedestrian Study*	1	4	4
1b.	Replace Broadway parking lanes with striped pedestrian-only lanes signed enforcement 9:00 am – 5 pm May-Sept. (2nd-6th Avenue)	2	4	4
	CREATE PEDESTRIAN CAPACITY THROUGH QUASI-PEDESTRIAN ZONE			
1c.	Prohibit non-tour related vehicles on Broadway 9:00 am - 5 pm May-Sept.	1	5	5
1d.	Prohibit all vehicles (except SMART) on Broadway 9:00 am - 5 pm May-Sept.	1	5	5
1e.	Prohibit all vehicles (except SMART) on Broadway between 2nd and 4th 9:00 am - 5 pm May-Sept.	1	4	4
	PEDESTRIAN CAPACITY SPOT IMPROVEMENTS			
2.	Build sidewalk extensions at select bus stops and NE corner of 2nd & Broadway	2	2	2
3.	Build Seawalk Project between seawall and small boat harbor parking lot *as detailed in City of Skagway's Seawalk and Upland Conceptual Plans*	1	2	1
4.	Build 8-10 ft. sidewalk on east side of Broadway *As detailed per Gateway Pedestrian Improvement Project*	1	3	1
5.	Move SMART bus stop at Pantheon south in front of NPS empty lot	1	1	1
	PEDESTRIAN DISTRIBUTION			
6.	Pullen Creek Shoreline Park: Improve paths and way finding signs to better distribute pedestrians from Railroad Dock and acquaint pedestrians with park amenities *as detailed in Conceptual Master Plan for Landscaping in the Historic District, Appendix E*	1	3	1
7.	Build walkway along Pullen Creek from Congress Way to City Hall *as being pursued by Taiya Inlet Watershed Council*	1	3	1
8.	Additional wayfinding signs highlighting day hiking, parks, alternative routes into town *as detailed in Conceptual Master Plan for Landscaping in the Historic District, Appendix D*	1	1	1
	VEHICLE DISTRIBUTION			
9.	Sign for northbound vehicles off of AMHS Ferry: "Historic District Straight Ahead. Thru traffic to Klondike Highway, Left at 1st Ave."	1	4	1
	PEDESTRIAN SAFETY AND REST AND RETREAT FROM BROADWAY CONGESTION			
10.	Stripe crosswalks at 2nd & Broadway and Ore Dock tracks & Broadway Keep existing crosswalk stripings on street surface maintained	1	1	1
11.	Change yield to stop sign on east-bound 1st Ave at Broadway to prevent vehicles from rolling into pedestrian crosswalk	1	3	2
12.	More benches/picnic tables in NPS owned vacant lots on Broadway *as detailed in Conceptual Master Plan for Landscaping in the Historic District*	1	1	1
13.	Continue visitor education on pedestrian safety, alternative routes, and resting areas in KLGO Ranger introduction before tour	1	1	1
	CONTINUED TRANSPORTATION IMPROVEMENTS			
14.	AK DOT&PF, City of Skagway, and KLGO representatives meet regularly (i.e. April, July, October) to review transportation situation and respective funding opportunities	1	1	1
15.	Conduct a Visitor Experience and Resource Protection (VERP) for Skagway Historic District unit of KLGO	1	1	1
	1 = Very Friendly; 2 = Friendly; 3 = Neutral; 4 = Unfriendly; 5 = Very Unfriendly			

FIGURE 13: PROPOSED IMPROVEMENTS MAP

PROPOSAL DETAILS

CREATE PEDESTRIAN CAPACITY THROUGH USE OF PARKING LANES AS PEDESTRIAN LANES

Installing removable bollards or striping the Broadway parking lanes as pedestrian lanes would approximately double the walkway capacity for pedestrians. Both propose eliminating street parking on Broadway within the Skagway Historic District or within some subset (i.e. 2nd to 6th Avenue). The proposed pedestrian lanes would be approximately 6 feet wide; allowing 32 feet for driving lanes. No new signage beyond replacing the existing parking restriction signage is anticipated.

The removable bollards recommendation, as described by AK DOT&PF's 1998 *Skagway Vehicular and Pedestrian Study,* would be the more effective proposal:

> Ornate removable pedestrian bollards would be added to Broadway from 2nd Street to 7th Street (*sic*). A connector would be placed in the street to allow removal of the bollards in the winter and reconnection the following spring. The bollards would have an architectural style with a chain or rope connecting them together.

The bollards and chains effectively channelize pedestrians in the sidewalk and pedestrian lane thereby preventing them from jaywalking or wandering into the vehicular lanes. This channelization provides a safety enhancement that should not be overlooked.

The more inexpensive alternative would be to stripe and sign the Broadway parking lanes as pedestrian-only lanes. Pedestrian figures and "PED ONLY (9-5 Mon-Fri; May-Sept)" directives would be painted in the lanes. Lost Road near the small boat harbor has a 5.5-foot striped lane on the south side of the vehicular lane. While the Lost Road lane does not have any restrictions painted on its surface as would be required on Broadway, it is an example of how a simple striped lane channelizes pedestrians.

Widening all the boardwalks along Broadway is not included as a proposal because it is considered an excessive measure. Supplementary pedestrian capacity is only needed 5 months of the year. Permanently removing the Broadway parking lanes would place an unjustified hardship on local residents and businesses.

CREATE PEDESTRIAN CAPACITY THROUGH QUASI- PEDESTRIAN ZONE

Eliminating vehicular traffic on Broadway would be the most pedestrian friendly alternative. (See Appendix H for images of Broadway as a vehicle-free zone.) Limiting vehicular traffic to SMART and permitted tour vehicles would be advantageous to pedestrians but may give them a false sense of safety from accident with vehicles. Less traffic on Broadway will compel more pedestrians to walk in the street which will reduce their alertness to any vehicles. Limiting traffic only to SMART and pedestrians would be safer but still require both modes (especially SMART) to be cautious.

These alternatives are less friendly to businesses as merchants may miss opportunities to advertise to vehicular traffic. Residents also would have to find an alternative route to Broadway. Limiting the pedestrian zone between 2nd and 4th Avenues would allow vehicular traffic to access Skagway Hardware and Skagway Air which generate frequent resident and business vehicular trips. Since Spring Street is not a thru street beyond 5th Avenue, it's important to provide both north and south outlets for its vehicles at both 2nd and 5th.

Additional signage on east-west streets would be required to notify vehicles of the vehicle-free zone on Broadway.

PEDESTRIAN CAPACITY SPOT IMPROVEMENTS

Sidewalk/boardwalk extensions (also referred to as curb bulbs or bulges) increase acute capacity shortfalls, improve sight distances and visibility of pedestrians, and shorten crossing distances and pedestrian exposure to traffic in crosswalks. They extend the sidewalk into the parking lane and can be built at mid-blocks and/or corners. See Figures 12 and 13 for "before and after" representations of the extensions. (The measurements on the graphics are examples and don't apply to Skagway.) Vehicular traffic including large buses should not be impeded by the sidewalk extensions. Vehicles of all lengths have been observed at 2nd and Broadway to determine if they enter the parking lane during their turning movements. It

appears that 44-foot width of Broadway (with over 24 feet in thru-lanes) allows sufficient room to turn without entering the parking lanes.

FIGURE 14: BEFORE SIDEWALK EXTENSION

FIGURE 15: AFTER SIDEWALK EXTENSION

Source: Oregon Department of Land Conservation and Development

The following locations would benefit from boardwalk extensions to accommodate the large number of pedestrians traveling, window shopping, and using SMART:

a. Bus stop at the Red Onion at northwest corner of 2nd and Broadway
b. Bus stop at the Mascot Saloon at southeast corner of 3rd and Broadway
c. Northeast corner of 2nd and Broadway

If the bus stop at Pantheon is moved south in front of the KLGO empty lot, it would not be necessary to build a sidewalk extension at that location.

The *Seawalk* improvements are shown on the City of Skagway's *Seawalk and Upland Conceptual Plans*. These preliminary drawings were made in conjunction with the engineering plans for the rebuilding of Skagway's seawall at the small boat harbor. The *Seawalk* drawings depict 12-foot sidewalks, a good deal of landscaping, a visitor center, public restrooms, seating, and reconfigured tour pick-up areas. As shown on Figure 4, the area between the boat harbor parking lot and the Railroad dock consists of a 5-foot sidewalk. The *Seawalk* project would resolve this capacity issue as well as greatly improve visitor orientation and reception.

The lack of a sidewalk on the east side of Broadway between 1st Avenue and the AMHS Ferry Terminal is the only significant missing link in Skagway's sidewalk system. Making this walkway connection has long been recognized by the City and KLGO (see *Gateway Pedestrian Improvement Project* description on page 4.)

PEDESTRIAN DISTRIBUTION

The paths through Pullen Creek Park offer a setting both for visitor distribution and rest and relaxation for visitors and residents alike. The 1994 *Conceptual Master Plan for Landscaping in the Historic District* also recognized this area as an underused Skagway resource. The *Master Plan for Landscaping* suggested improving the walkway connection through Pullen Creek Shoreline Park from Congress Way to Centennial Park. Beaten down paths exist but could be much enhanced with designated and maintained pathways and welcoming landscaping. Pullen Pond and Creek are inherent draws to tourists during the salmon runs of the latter half of the season. Many visitors are not familiar with the salmon cycle and enjoy the access to their habitat. Therefore not only would the Pullen Creek paths distribute pedestrians onto alternative routes and provide R and R, it would also acquaint them with some of the natural resources of Skagway.

A walkway along Pullen Creek from Congress Way to City Hall is an initiative that is being pursued by the Taiya Inlet Watershed Council. Their main goal is to restore Pullen Creek's stream channel, fish habitat, and riparian area. Providing controlled pedestrian access and outreach education through a walkway is considered an important part of the project.

Additional visitor information signs will improve pedestrian distribution because pedestrians will be able to see the alternatives available to them and make choices as opposed to simply following the crowd in front of them.

VEHICLE DISTRIBUTION

As noted in the description of the AMHS, 76% percent of observed private vehicular traffic from the ferry continued north on Broadway into the Historic District as opposed to turning onto 1st Avenue and continuing on the Klondike Highway. It is not known how many of these vehicles stopped, shopped, or used other services in the Historic District. It is only known that the directional signage for vehicles departing the ferry terminal is not very informative. It is recommended that the "Whitehorse" directional sign be replaced with a "Historic District Straight Ahead. Thru traffic to Klondike Highway, Left on 1st Ave." sign.

PEDESTRIAN SAFETY AND REST AND RETREAT FROM BROADWAY CONGESTION

It has been said that some Skagway visitors operate with a "Disneyland" outlook. Taking pictures in the middle of the street, not being aware of turning vehicles, and jaywalking are commonly observed behaviors. Crosswalks remind pedestrians that they have a designated space where they should cross a street which has the effect of channelizing pedestrians. Crosswalks also alert vehicles to the possible presence of pedestrians. In doing so, they control the number of conflict points between vehicles and walkers. For both of these reasons, 2nd and Broadway, 1st and Broadway, and the along the railroad crossings on Broadway would benefit from clearly designated crosswalks.

Similarly, the high volume of pedestrians crossing 1st Avenue at Broadway supports the need to change the yield sign in that location to a stop sign. Although there is a clear crosswalk at that intersection, vehicles with a yield sign tend to roll into the crosswalk as they attempt to turn. A stop sign would confirm the pedestrians' right of way over the vehicles.

Benches against building fronts and seating and picnic tables setback from the sidewalk are both available to pedestrians along the Broadway historic corridor. The setback seating offers much more repose on peak days. It also helps to a small degree with congestion as it gives tourist pedestrians a place to regroup and converse rather than doing so in the middle of the sidewalk. KLGO should provide additional picnic tables in its empty lots or empty spaces next to its buildings. The lot south of the Pantheon in particular has room for 1if not 2 more picnic tables. As the existing picnic table was the location of the modal counts, it is confirmed that they are well appreciated and used by visitors.

KLGO interpretive rangers should continue their practice of alerting visitors to both watch their step and watch traffic as they walk through town. Alternative routes through town or back to the visitor's dock should also be mentioned.

CONTINUED TRANSPORTATION IMPROVEMENTS

The three main public agencies shaping Skagway transportation (City of Skagway, AK DOT&PF, and KLGO) should meet regularly to review the current transportation situation and respective funding opportunities. Other stakeholders (i.e. Taiya Inlet Watershed Council, WP&Y Railroad) should be invited so that all can be made aware of various projects' status. Significant state and federal funds could be leveraged and capitalized upon through regular coordination. Opportunities for partnering unquestionably exist. They include the following:

- ✓ KLGO and City of Skagway partnering on expansion of SMART service to Dyea.
  The City is currently renegotiating the SMART contract. KLGO should join other community members who are asking for the addition of regular service to Dyea as part of the new contract. Additionally KLGO should pursue NPS Alternative Transportation funding to support this transit expansion.

- ✓ KLGO partnering with City on development of City's GIS program.
  The City of Skagway is updating their Alaska Coastal Management Plan. At the August 19th City Council meeting, city staff stated that they would look at partnering with KLGO on their GIS needs for the ACMP. Besides technical assistance, KLGO has data sets including high resolution imagery of Skagway that may be useful to the City.

- ✓ KLGO and City partnering on the addition of visitor wayfinding signs.

To facilitate these meetings, the City should maintain a list of transportation improvements as recommended in their *Comprehensive Plan*. Joint projects should be prioritized into the NPS's Project Management Information System (PMIS) as recommended in the NPS's *Trip Report* to access NPS funds.

A Visitor Experience and Resource Protection (VERP) is designed to assess visitor use and carrying capacity of a park unit. In short, it determines how much is too much. Data from a VERP would help facilitate goal-setting for Skagway's tourism future among stakeholders.

5. CONCLUSIONS

In summary, the modal inventory and 2003 visitor data substantiated that tourist pedestrians dominate the modal groups. The D-E Level of Service confirms that much of the sidewalk capacity particularly along the Broadway historic corridor is inadequate to handle the current visitor pedestrian volumes. Increasing the Historic District capacity through use of the Broadway parking lanes, the creation of a quasi-pedestrian zone, and/or sidewalk extensions is necessary to keep pedestrians out of the street. Opportunities for pedestrian distribution currently being pursued or suggested in past studies should not be missed.

The intermodal analysis established that the peak period can be very long (Monday through Thursday, 9:00 am to 5:00 pm). It also found that the modes function well in the vicinity of the docks and improvements to limit intermodal conflicts need to only occur in limited locations. These locations are the vicinities of 1st Avenue & Broadway and 2nd Avenue & Broadway.

The recommendations of this report concentrate on increasing pedestrian infrastructure capacity and distributing pedestrians and vehicles on alternative routes. As is evident in Table 7, most of the proposals are based on existing plans or studies. Few others are new to Skagway and none are ground breaking. Making the most of the potential improvements entails meshing each project's relationship to the whole transportation network and integrating design elements to complement individual projects within the system. If successful steps are taken, all modes of traffic in Skagway will benefit.

While this plan was under the direction of the Klondike Gold Rush National Historical Park, most of the recommendations fall under the jurisdiction of the City of Skagway. This fact highlights the importance of the partnerships among public agencies and regular meetings of those groups as described in Proposal #14. While the City may be the lead agency on most improvements, it's clear that other agencies can provide helpful resources in the effort.

APPENDIX A

LIST OF ABBREVIATIONS

ACMP	Alaska Coastal Management Plan
AK DOT&PF	Alaska Department of Transportation and Public Facilities
AMHS	Alaska Marine Highway System
ADT	Average Daily Traffic
CIP	Capital Improvements Plan
CUA	Commercial Use Authorization
DEIS	Draft Environmental Impact Statement
GIS	Geographic Information System
HCM	Highway Capacity Manual
KLGO	Klondike Gold Rush National Historical Park
LOS	Level of Service
NPS	National Park Service
PMIS	Project Management Information System
SMART	Skagway Municipal and Regional Transit
STIP	Statewide Transportation Improvements Program
VERP	Visitor Experience and Resource Protection (VERP)
WP&Y	White Pass & Yukon Railroad

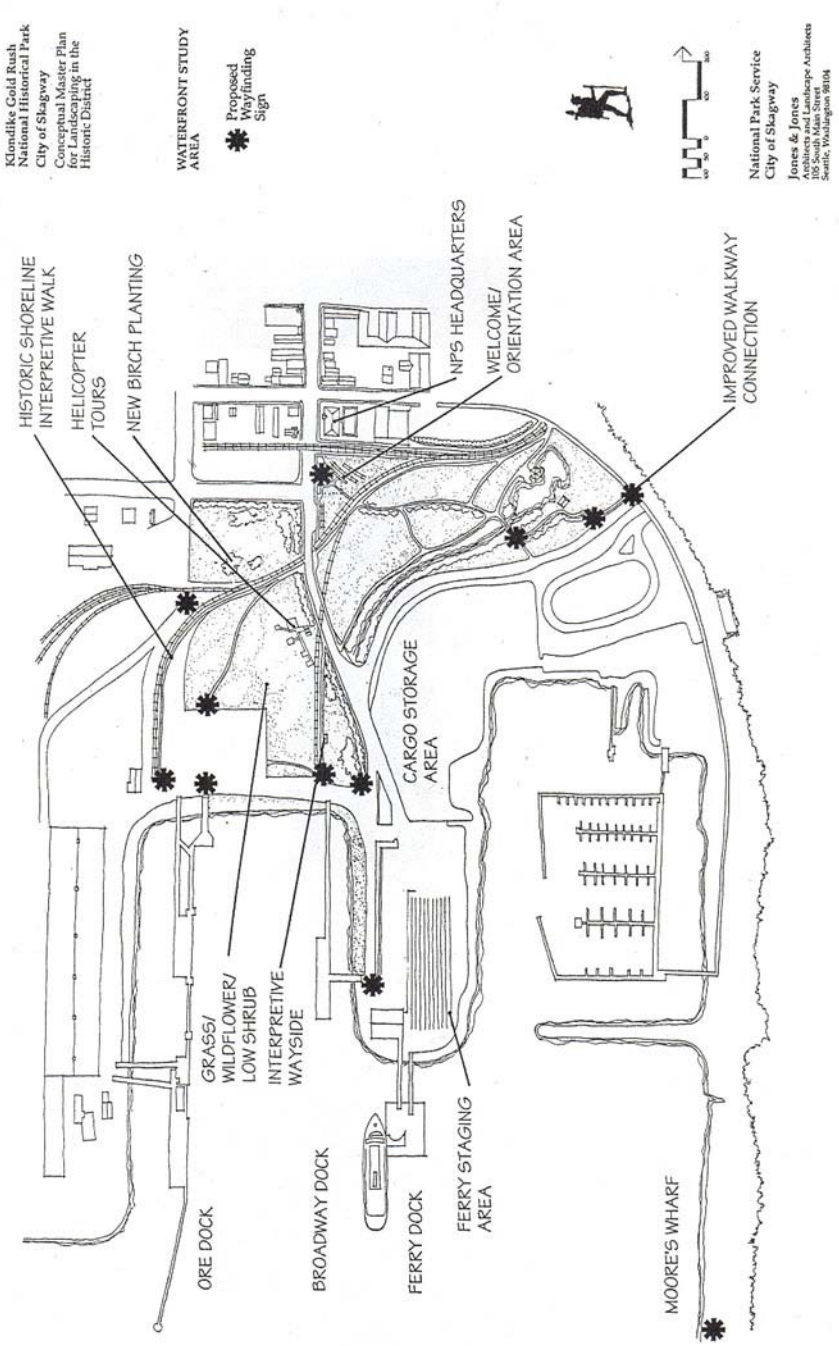
APPENDIX B

2004 TOUR OPERATORS

Owners and Operators of Land Tours	***Notes***
Skagway Air Flight Seeing	Represented by M & M Tour Sales
Adams Charters	Offers Summit Tour
Alaska Icefield Expeditions	Not represented by M & M Tour Sales
Alaska Mountain Guides	Not represented by M & M Tour Sales
Alaska Sled Dog Adventures	Tour Sold on Ship
Alaska Travel Adventures	Not represented by M & M Tour Sales
Chilkat Guides LTD	Tour Sold on Ship
Chilkoot Charters & Tours	Offers Summit Tour
Chilkoot Horseback Adventures	Tour Sold on Ship
Cree-ations Tours & Gifts	Represented by M & M Tour Sales; Offers Summit Tour
Discover Skagway	Offers Summit Tour
Dolly Varden Alaska Tours	
Dyea Dave	
Educational Travel & Tours	
Frontier Excursions	Represented by M & M Tour Sales; Summit
Glacier Valley Wilderness Adventures	
Gray Line of Alaska	
Klondike Tours	Represented by M & M Tour Sales; Summit
North Country Pedi-Cab Taxi	
Princess Tours	Tour Sold on Ship
Skagway AK Street Car Tour	Tour Sold on Ship
Sockeye Cycle	Represented by M & M Tour Sales and Sold on Ship
Southeast Tours	Represented by M & M Tour Sales; Offers Summit Tour
Temsco Helicopters	Represented by M & M Tour Sales and Sold on Ship
White Pass & Yukon Route	Tour Sold on Ship
Water/Fishing Tours	
Alaska Fjordlines	
Chilkat Cruises & Tours	
Choctaw Charters	Represented by M & M Tour Sales
Dockside Charters	Represented by M & M Tour Sales
Eco Orca Rafting & Tours	
Fishfull Think-n	Represented by M & M Tour Sales
McCormick Charters	Represented by M & M Tour Sales
Pacific Seaflight, Inc.	
Skagway Float Tours	Represented by M & M Tour Sales

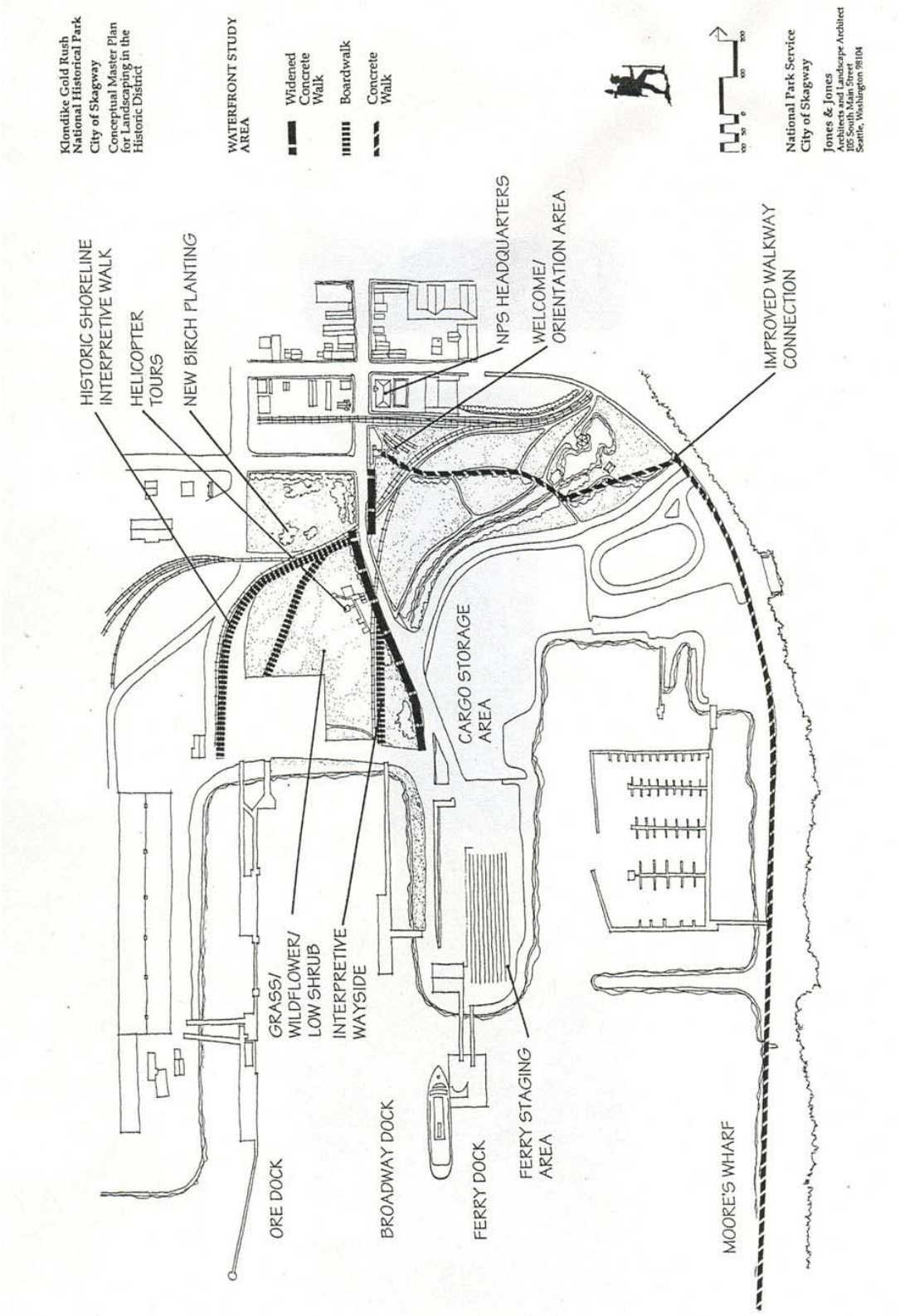
APPENDIX D

Proposed Wayfinding Sign Locations from the 1994 *Conceptual Master Plan for Landscaping in the Historic District*



APPENDIX E

Proposed Path System from the 1994 *Conceptual Master Plan for Landscaping in the Historic District*



APPENDIX F

LEVEL OF SERVICE PEDESTRIAN WALKING SPEED DATA

Timed walks on Broadway boardwalks between centerline of 2nd Avenue and centerline of 6th Avenue.

Day	Date	Time	Direction	Side	Time	Time (seconds)	Distance (feet)	Feet/ second	LOS	Peak Hour
Thursday	7/8/04	10:39	South	East	5.18	318	1115	3.51	E	Yes
Thursday	7/8/04	10:46	North	East	6.12	372	1115	3.00	E	Yes
Tueday	7/13/04	12:57	North	East	5.01	301	1115	3.70	E	Yes
Tueday	7/13/04	1:06	South	West	5.1	310	1115	3.60	E	Yes
Wednesday	7/14/04	2:40	South	West	5.03	303	1115	3.68	E	Yes
Friday	7/16/04	3:29	South	East	4.12	252	1115	4.42	A	No
Monday	7/19/04	12:05	North	West	4.55	295	1115	3.78	D	Yes
Tueday	7/20/04	12:08	South	East	5.01	301	1115	3.70	E	Yes
Wednesday	7/21/04	1:45	North	West	5.39	339	1115	3.29	E	Yes
Thursday	7/22/04	10:09	North	East	6.06	366	1115	3.05	E	Yes
Thursday	7/22/04	10:22	South	West	5.55	355	1115	3.14	E	Yes
Wednesday	7/28/04	1:01	North	East	5.07	307	1115	3.63	E	Yes
Wednesday	7/28/04	1:11	South	West	4.43	283	1115	3.94	D	Yes
Wednesday	8/4/04	1:02	South	West	4.57	297	1115	3.75	E	Yes
Wednesday	8/11/04	12:32	North	East	5.1	310	1115	3.60	E	Yes
Wednesday	8/11/04	12:48	South	West	5.18	318	1115	3.51	E	Yes
Thursday	8/12/04	3:56	South	East	4.32	272	1115	4.10	B	Yes
Friday	8/20/04	9:01	North	East	4.16	256	1115	4.36	A	No
Saturday	8/21/04	12:38	North	East	4.33	273	1115	4.08	C	No
Sunday	8/22/04	4:16	South	West	4.21	261	1115	4.27	A	No
Tueday	8/24/04	3:09	North	East	4.51	291	1115	3.83	D	Yes
Wednesday	8/25/04	2:04	North	West	4.34	274	1115	4.07	C	Yes
Monday	8/30/04	2:55	South	West	4.41	281	1115	3.97	D	Yes
Tueday	8/31/04	9:15	North	East	4.36	276	1115	4.04	C	Yes
Tueday	8/31/04	9:20	South	West	4.24	264	1115	4.22	B	Yes
Wednesday	9/1/2004	4:01	North	East	4.39	279	1115	4.00	D	Yes
Sunday	9/5/2004	1:40	North	East	4.18	258	1115	4.32	A	No
Sunday	9/5/2004	1:51	South	West	4.29	269	1115	4.14	C	No
Monday	9/6/2004	11:50	North	West	4.54	294	1115	3.79	D	Yes
Monday	9/6/2004	11:50	South	East	4.44	284	1115	3.93	D	Yes
Sunday	9/12/2004	3:59	South	West	4.14	254	1115	4.39	A	No
Monday	9/13/2004	12:04	North	East	4.48	288	1115	3.87	D	Yes

APPENDIX G

Modal Count Data

Location: Empty lot (next to Pantheon Bldg.) on west side of Broadway, between 3rd and 4th Avenue

Date: 5/25/04	**Tuesday**				**Weather: 55 degrees; very windy; overcast**			
Pedestrian Counts						**Wheelchairs**		
	Counter	**Count**				**North Bound**	**South Bound**	
11:30-11:45	648	648						
11:45-12:00	1355	707				2		
12:00-12:15	1938	583				3	2	
12:15-12:30	2519	581				2	3	
TOTALS							**2,531**	
Vehicular Counts	**SMART**		**Commercial/Gov't**		**Private**		**Bicycle**	
Date:	**North Bound**	**South Bound**	**North Bound**	**South Bound**	**North Bound**	**South Bound**	**North Bound**	**South Bound**
11:30-11:45	3	3	9	3	8	3	4	3
11:45-12:00	2	3	3	9	5	3	5	2
12:00-12:15	3	3	6	3	10	3	2	7
12:15-12:30	4	3	5	5	3	8	6	2
TOTALS		**24**		**43**		**43**		**31**
Date: 5/26/04	**Wednesday**				**Weather: Windy, chilly, cloudy, 50 degrees**			
Pedestrian Counts						**Wheelchairs**		
	Counter	**Count**				**North Bound**	**South Bound**	
10:30-10:45	316	316						
10:45-11:00	682	366				3	6	
11:00-11:15	1,000	318				1	1	
11:15-11:30	1,342	342				2	3	
TOTALS							**1,358**	
Vehicular Counts	**SMART**		**Commercial/Gov't**		**Private**		**Bicycle**	
	North Bound	**South Bound**	**North Bound**	**South Bound**	**North Bound**	**South Bound**	**North Bound**	**South Bound**
10:30-10:45	2	4	8		8	5	1	8
10:45-11:00	5	3	6	4	5	6	3	8
11:00-11:15	3	4	5	8	5	8	4	1
11:15-11:30	2	4	4	4	7	5	5	1
TOTALS		**27**		**39**		**49**		**31**
Date: 6/1/04	**Tuesday**				**Weather: Windy, overcast, 50 degrees**			
Pedestrian Counts						**Wheelchairs**		
	Counter	**Count**				**North Bound**	**South Bound**	
12:30-12:45	497	497					1	
12:45-1:00	1,001	504						
1:00-1:15	1,539	538						
1:15-1:30	1,971	432				1		
TOTALS							**1,973**	
Vehicular Counts	**SMART**		**Commercial/Gov't**		**Private**		**Bicycle**	
	North Bound	**South Bound**	**North Bound**	**South Bound**	**North Bound**	**South Bound**	**North Bound**	**South Bound**
12:30-12:45	2	5	6	4	2	4	6	7
12:45-1:00	4	2	5	5	6	9	4	7
1:00-1:15	1	4	9	9	7	13	3	3
1:15-1:30	2	5	9	4	7	8	3	6
TOTALS		**25**		**51**		**56**		**39**
Date: 6/2/04	**Wednesday**				**Weather: Windy, sunny**			
Pedestrian Counts						**Wheelchairs**		
	Counter	**Count**				**North Bound**	**South Bound**	
10:30-10:45	658	658				1	2	
10:45-11:00	1,376	718						
11:00-11:15	2,163	787					2	
11:15-11:30	2,811	648				1	2	
TOTALS							**2,819**	
Vehicular Counts	**SMART**		**Commercial/Gov't**		**Private**		**Bicycle**	
	North Bound	**South Bound**	**North Bound**	**South Bound**	**North Bound**	**South Bound**	**North Bound**	**South Bound**
10:30-10:45	4	4	11	5	6	3	4	5
10:45-11:00	3	6	3	1	2	7	4	4
11:00-11:15	6	6	5	3	4	7	9	6
11:15-11:30	4	4	4	2	4	7	3	6
TOTALS		**37**		**34**		**40**		**41**

APPENDIX G

Modal Count Data

Location: Empty lot (next to Pantheon Bldg.) on west side of Broadway, between 3rd and 4th Avenue

Date: 6/3/04	**Thursday**				**Weather:**	Sunny, warm, no wind		
Pedestrian Counts						**Wheelchairs**		
	Counter	**Count**				**North Bound**	**South Bound**	
9:30-9:45	359	359				1		
9:45-10:00	735	376					1	
10:00-10:15	1,163	428						
10:15-10:30	1,689	526						
TOTALS							**1,691**	
2:30-2:45	332	332				1		
2:45-3:00	648	316						
3:00-3:15	952	304						
3:15-3:30	1,233	281				1	1	
TOTALS							**1,236**	
Vehicular Counts	**SMART**		**Commercial/Gov't**		**Private**		**Bicycle**	
	North Bound	**South Bound**	**North Bound**	**South Bound**	**North Bound**	**South Bound**	**North Bound**	**South Bound**
9:30-9:45	4	4	7	4	3	11	3	2
9:45-10:00	2	3	5	3	7	11	3	3
10:00-10:15	4	2	9	5	6	6	3	6
10:15-10:30	4	3	5	4	3	7	3	3
TOTALS		**26**		**42**		**54**		**26**
2:30-2:45	3	2		5	5	7	6	7
2:45-3:00	2		5	4	14	4	4	8
3:00-3:15	1	3	2	6	4	11	4	6
3:15-3:30	2	2	7	12	5	12	4	2
TOTALS		**15**		**41**		**62**		**41**
Date: 6/7/04	**Monday**				**Weather: Warm; Haze; No wind**			
Pedestrian Counts						**Wheelchairs**		
	Counter	**Count**				**North Bound**	**South Bound**	
11:30-11:45	639	639				1	1	
11:45-12:00	1,273	634				3	3	
12:00-12:15	1,862	589				2	3	
12:15-12:30	2,411	549				1	1	
TOTALS							**2,426**	
Vehicular Counts	**SMART**		**Commercial/Gov't**		**Private**		**Bicycle**	
	North Bound	**South Bound**	**North Bound**	**South Bound**	**North Bound**	**South Bound**	**North Bound**	**South Bound**
11:30-11:45	4	2	7	4	9	7	4	2
11:45-12:00	2	5	4	3	3	7	4	4
12:00-12:15	3	3	7	9	11	3	2	
12:15-12:30	3	2	8	2	7	9	8	6
TOTALS		**24**		**44**		**56**		**30**
Date: 6/8/04	**Tuesday**				**Weather:**	55 degrees; Cool, overcast, very windy		
Pedestrian Counts						**Wheelchairs**		
	Counter	**Count**				**North Bound**	**South Bound**	
10:30-10:45	785	785				2		
10:45-11:00	1,461	676				1	3	
11:00-11:15	2,138	677				1	2	
11:15-11:30	2,872	734				2	2	
TOTALS							**2,885**	
Vehicular	**SMART**		**Commercial/Gov't**		**Private**		**Bicycle**	
	North Bound	**South Bound**	**North Bound**	**South Bound**	**North Bound**	**South Bound**	**North Bound**	**South Bound**
10:30-10:45	5	4	11	3	4	5	2	2
10:45-11:00	4	4	6	8	8	1	4	3
11:00-11:15	5	7	15	7	7		2	2
11:15-11:30	4	3	6	4	4	6	6	5
TOTALS		**36**		**60**		**35**		**26**

Modal Count Data

Location: Empty lot (next to Pantheon Bldg.) on west side of Broadway, between 3rd and 4th Avenue

Date: 6/9/04	**Wednesday**				**Weather: Windy, overcast, chilly, low 50's**			
Pedestrian	**Counter**	**Count**				**Wheelchairs:**	**North Bound**	**South Bound**
11:30-11:45	610	610					1	1
11:45-12:00	1,195	585						
12:00-12:15	1,826	631						
12:15-12:30	2,465	639					1	2
TOTALS								**2,470**
Vehicular	**SMART**		**Commercial/Gov't**		**Private**		**Bicycle**	
	North Bound	**South Bound**	**North Bound**	**South Bound**	**North Bound**	**South Bound**	**North Bound**	**South Bound**
11:30-11:45	2	3	9	6	4	4	4	4
11:45-12:00	3	6	3	7	6	9	11	5
12:00-12:15	6	3	4	1	6	4	1	6
12:15-12:30	2	4	3	5	5	12	2	5
TOTALS		**29**		**38**		**50**		**38**
Date: 6/29/04	**Tuesday**				**Weather:**	60 degrees; Warm/hazy		
Pedestrian	**Counter**	**Count**				**Wheelchairs:**	**North Bound**	**South Bound**
1:30-1:45	561	561					3	1
1:45-2:00	1,094	533						1
2:00-2:15	1,666	572					2	
2:15-2:30	2,196	530						2
TOTALS								**2,205**
Vehicular	**SMART**		**Commercial/Gov't**		**Private**		**Bicycle**	
	North Bound	**South Bound**	**North Bound**	**South Bound**	**North Bound**	**South Bound**	**North Bound**	**South Bound**
1:30-1:45	4	4	17	2	12	8	8	2
1:45-2:00	2	4	15	9	12	11	7	8
2:00-2:15	3	4	6	2	5	4	4	8
2:15-2:30	5	3	3	5	9	9	11	10
TOTALS		**29**		**59**		**70**		**58**
Date: 6/30/04	**Wednesday**				**Weather:**	65 degrees		
Pedestrian	**Counter**	**Count**				**Wheelchairs:**	**North Bound**	**South Bound**
11:30-11:45	743	743						
11:45-12:00	1,488	745					1	2
12:00-12:15	2,289	801						
12:15-12:30	3,083	794					1	1
TOTALS								**3,088**
Vehicular	**SMART**		**Commercial/Gov't**		**Private**		**Bicycle**	
	North Bound	**South Bound**	**North Bound**	**South Bound**	**North Bound**	**South Bound**	**North Bound**	**South Bound**
11:30-11:45	5	5	8	3	2	9	6	4
11:45-12:00	2	3	2	3	12	5	3	2
12:00-12:15	7	4	4	5	10	7	5	3
12:15-12:30	1	4	5	4	9	6	2	4
TOTALS		**31**		**34**		**60**		**29**
Date: 7/6/04	**Tuesday**				**Weather:**	55 F; Partly sunny		
Pedestrian	**Counter**	**Count**				**Wheelchairs:**	**North Bound**	**South Bound**
10:30-10:45	730	730					3	5
10:45-11:00	1,612	882					1	2
11:00-11:15	2,384	772					1	2
11:15-11:30	3,072	688					2	2
TOTALS								**3,090**
Vehicular	**SMART**		**Commercial/Gov't**		**Private**		**Bicycle**	
	North Bound	**South Bound**	**North Bound**	**South Bound**	**North Bound**	**South Bound**	**North Bound**	**South Bound**
10:30-10:45	5	2	8	2	1	10	2	5
10:45-11:00	4	5	6	3	5	5	2	9
11:00-11:15	3	6	11	7	3	3	6	3
11:15-11:30	3	2	4	5	8	8	4	3
TOTALS		**30**		**46**		**43**		**34**

APPENDIX G

Modal Count Data

Location: Empty lot (next to Pantheon Bldg.) on west side of Broadway, between 3rd and 4th Avenue

Date: 7/14/04	**Monday**				**Weather:**	58 degrees; Hazy/sunny		
Pedestrian	**Counter**	**Count**				**Wheelchairs:**	**North Bound**	**South Bound**
1:30-1:45	649	649					1	
1:45-2:00	1,341	692						1
2:00-2:15	1,918	577						
2:15-2:30	2,533	615					1	1
TOTALS								**2,537**
Vehicular	**SMART**		**Commercial/Gov't**		**Private**		**Bicycle**	
	North Bound	**South Bound**	**North Bound**	**South Bound**	**North Bound**	**South Bound**	**North Bound**	**South Bound**
1:30-1:45	4	4	17	4	11	11	12	15
1:45-2:00	4	1	5	3	8	6	3	7
2:00-2:15	5	6	8	4	14	9	15	10
2:15-2:30	3	1	3	3	8	1	6	6
TOTALS		**28**		**47**		**68**		**74**
Date: 7/20/04	**Tuesday**					**Weather:**	59 degrees; Partly cloudy	
	Pedestrians		**Wheelchairs**		**Carriages**		**Yellow Street Car**	
	Counter	**Count**	**North Bound**	**South Bound**	**North B**	**South B**	**North Bound**	**South Bound**
11:00-11:15	**760**	**760**						
11:15-11:30	**1,481**	**721**	**1**	**2**	**2**			
11:30-11:45	**2,209**	**728**					**2**	
11:45-12:00	**3,035**	**826**	**1**	**1**	**2**			
TOTALS				**3,040**				
Vehicular	**SMART**		**Commercial/Gov't**		**Private**		**Bicycle**	
	North Bound	**South Bound**	**North Bound**	**South Bound**	**North Bound**	**South Bound**	**North Bound**	**South Bound**
11:00-11:15	**5**	**3**	**2**	**6**	**11**	**5**	**1**	**4**
11:15-11:30	**3**	**6**	**7**	**2**	**7**	**8**	**2**	**3**
11:30-11:45	**4**	**4**	**1**	**4**	**5**	**10**	**3**	**5**
11:45-12:00	**3**	**5**	**3**	**5**	**5**	**8**	**7**	**5**
TOTALS		**33**		**30**		**59**		**30**
Date: 7/20/04	**Tuesday**					**Weather:**	59 degrees; Partly cloudy	
	Pedestrians		**Wheelchairs**		**Carriages**		**Yellow Street Car**	
	Counter	**Count**	**North Bound**	**South Bound**	**North B**	**South B**	**North Bound**	**South Bound**
2:45-3:00	550	550	2	1	1	1		
3:00-3:15	1,128	578						
3:15-3:30	1,625	497			2			
3:30-3:45	2,166	541		2				
TOTALS				**2,171**				
Vehicular	**SMART**		**Commercial/Gov't**		**Private**		**Bicycle**	
	North Bound	**South Bound**	**North Bound**	**South Bound**	**North Bound**	**South Bound**	**North Bound**	**South Bound**
2:45-3:00	3	4	6	5	6	9	6	7
3:00-3:15	5	6	4	8	9	11	3	4
3:15-3:30	3	5	10	8	17	9	11	6
3:30-3:45	6	3	4	6	11	12	8	9
TOTALS		**35**		**51**		**84**		**54**
Date: 7/30/04	**Friday**					**Weather:**	55 degrees	
	Pedestrians		**Wheelchairs**		**Horse Carriages**		**Yellow Street Car**	
	Counter	**Count**	**North Bound**	**South Bound**	**North B**	**South B**	**North Bound**	**South Bound**
3:00-3:15	321	321	1			1		
3:15-3:30	551	230	1	1				
3:30-3:45	861	310		1				
3:45-4:00	1,263	402	2		1	1		
TOTALS				**1,269**				
Vehicular	**SMART**		**Commercial/Gov't**		**Private**		**Bicycle**	
	North Bound	**South Bound**	**North Bound**	**South Bound**	**North Bound**	**South Bound**	**North Bound**	**South Bound**
3:00-3:15	3	5	8	6	10	13	1	3
3:15-3:30	4	3	8	5	23	11	2	4
3:30-3:45	3	3	1	5	16	8	1	6
3:45-4:00	3	3	3	3	8	15	5	9
TOTALS		**27**		**39**		**104**		**31**

Modal Count Data

Location: Empty lot (next to Pantheon Bldg.) on west side of Broadway, between 3rd and 4th Avenue

Date: 8/4/04	**Wednesday**					**Weather:**	Sunny warm 60 degrees	
	Pedestrians		**Wheelchairs**		**Horse Carriages**		**Yellow Street Car**	
	Counter	**Count**	**North Bound**	**South Bound**	**North B**	**South B**	**North Bound**	**South Bound**
11:45-12:00	760	760		1	1			
12:00-12:15	1,571	811	1	2				
12:15-12:30	2,263	692		2	1			
12:30-12:45	2,908	645			1			
TOTALS				**2,914**				
Vehicular	**SMART**		**Commercial/Gov't**		**Private**		**Bicycle**	
	North Bound	**South Bound**	**North Bound**	**South Bound**	**North Bound**	**South Bound**	**North Bound**	**South Bound**
11:30-11:45								
11:45-12:00	2	3	4	4	14	4	2	3
12:00-12:15	2	6	6	8	7	1	6	7
12:15-12:30	4	1	9	7	14	6	4	7
12:30-12:45	4	7	8	8	19	3	7	8
TOTALS		**29**		**54**		**68**		**44**

APPENDIX H

Image of Historic District as vehicle-free zone. Broadway looking north from 3rd Avenue on July 4, 2004.

Image of Historic District as vehicle-free zone. Broadway looking south from 5th Avenue on July 4, 2004.

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